Dryland Agriculture: Bringing Resilience to Crop Production Under Changing Climate

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Abstract

Drylands of the world are affected in addition to the impending climate change by various other inherent biotic and abiotic limitations like water availability, declining soil quality and pest and disease infestations. The challenges facing dryland agriculture, global food security and the sustainable management of natural resources are many and are interrelated. Productivity of dryland crops can be increased only if the problems are understood well and in turn combated effectively. Major dryland agro ecological regions of the world and their problems are outlined in this chapter. Sustainable Natural Resource Management (SNRM) is stressed here as an important way to addresses the problems faced by these regions of the world. Resilience to predicted climate change will depend on increasing agricultural productivity with available water resources; refining technologies and timely deployment of affordable strategies to accomplish potential levels of arable land and water productivity. An account into the adaptation strategies to increase resilience to combat climate change related effects by management of water, soil and biodiversity are detailed here. We propose here that research on adaptive capability of crops by increasing their resilience to abiotic stresses, pests and diseases will have to expand to new horizons with a systems biology perspective.

Keywords

Conservation Agriculture Plastic Mulch Dryland Agriculture Dryland Area Drought Susceptible Index